

## **Association of Major Power Customers of BC (AMPC)**

### **BC Hydro 2015 Rate Design Application (RDA)**

#### **Final Argument**

##### **I. INTRODUCTION**

1. AMPC is an industry association that represents major industrial operators in BC, including in the pulp and paper, forestry, mining, electrochemical and petrochemical industries, in matters of electricity regulation.
2. In this argument, AMPC addresses the following rate issues that affect its members: Rate Schedule 1823 (RS 1823) pricing for Transmission Service customers; the Large General Service (LGS) rate; and BC Old Age and Pensioners Organization's (BCOAPO) proposed "Crisis Intervention Fund". In addition, AMPC briefly comments on an issue arising from MoveUP's cross-examination of BC Hydro's pricing panel on the Tilbury Island liquefied natural gas facility.
3. In short, AMPC submits that the Commission should approve BC Hydro's application as applied for in relation to RS 1823 and LGS. BC Hydro has more than adequately justified its proposals for these rates, based on both fundamental ratemaking principles, and broad stakeholder consensus on their appropriateness through its two years of pre-hearing consultation. AMPC also submits that, although it is not opposed in principle to BCOAPO's "Crisis Intervention Fund", the Commission should not place any of the burden of this rate on other rate classes where it is not necessary to do so, and where those other rate classes are already paying well in excess of their cost of service.
4. Indeed, within the confines of legislative directions that restrict the options available to it, BC Hydro has proposed an updated RS 1823 rate that best captures the rate's original intent, including preserving its conservation signal and not unfairly penalizing customers that have already made conservation investments. Any debate about the form of revenue neutrality that should apply in setting RS 1823 is virtually academic (the amounts distinguishing customer bill from forecast revenue neutrality are immaterial) and the views of affected customers should therefore prevail.
5. BC Hydro has similarly proposed a reasonable and efficient LGS rate structure that moves away from an ineffective status quo, which because of its complexity is not

understood by customers and therefore does not create its intended conservation, to flat energy and demand charges that are simple and easily understood. To address intra-class rate impacts arising from this revised rate that would otherwise cause substantial bill impacts for efficient, high consumption, high load factor customers, BC Hydro has reasonably proposed increasing the demand charge recovery percentage of demand-related costs from 50% to 65%. This is consistent with cost causation principles and incents needed capacity conservation. A flattened rate also provides a good opportunity to focus a more refined conservation rate design on the more sophisticated portion of this rate class via the “XLGS” concept.

6. AMPC elaborates on each of these points in more detail below.

## **II. ARGUMENT**

### **A. RDA Framework**

7. AMPC appreciates the extensive consultation BC Hydro undertook in preparation for its filing of this RDA. This process was constructive because it narrowed the issues to be determined through this hearing, and it allowed BC Hydro to obtain customer input on its proposed rate structures in advance of filing for approval of those rate structures.
8. The Commission’s review of all rates in this RDA should be viewed through the lens of the extensive consultation that led to this application. The rates BC Hydro has proposed in the RDA largely reflect broad stakeholder consensus after extensive input from all parties, including those affected by rate changes. The Commission is required by the *Utilities Commission Act* to “consider all matters that it considers proper and relevant” when setting rates.<sup>1</sup> AMPC submits that it would be appropriate for the Commission to place considerable weight on the fact that the rates proposed in the RDA are the result of this thorough consultation process, especially given consensus in favour of their proposed rates from affected stakeholders.

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<sup>1</sup> *Utilities Commission Act*, R.S.B.C. 1996, c. 473, s. 60(1)(a).

## B. RS 1823 Pricing

9. At issue are some refinements to the existing RS 1823 rate. While the rate is currently functioning well, some changes are necessary due to binding legislative directions. AMPC elaborates on RS 1823 and its position below.
10. Briefly, AMPC submits that the Commission should prefer BC Hydro's Option 1 for RS 1823 pricing because:
  - (i) the status quo rates arise from Direction No. 6 to the Commission, and BC Hydro's Option 1 builds off these rates;<sup>2</sup>
  - (ii) Option 1 satisfies the legislated requirements for the RS 1823 rate; and
  - (iii) although Option 2 also largely meets those requirements, it harms customers that have made conservation investments and discourages future conservation relative to Option 1, without providing any additional benefits.
11. Option 1 is therefore best aligned with the traditional Bonbright criteria of customer understanding and acceptance, efficiency, and price stability.
12. RS 1823 is the default two-step conservation rate for Transmission Service customers. RS 1823 incents conservation by creating a two-tiered energy price that sets customer usage at a baseline, and imposes a lower marginal price for a customer's first 90% of energy usage (Tier 1) against that baseline than for their last 10% (Tier 2) such that, at 100% usage, a customer's total energy bill is the same as it would be under a flat energy rate. For F2016, Tier 1 was priced at 3.836 cents/kWh and Tier 2 at 8.503 cents/kWh.<sup>3</sup> A customer facing this price signal has a strong incentive to reduce Tier 2 energy usage. When the rate is working as intended, Tier 2 consumption should generally be less than 10% of a customer's consumption.
13. Pricing RS 1823 energy is an issue in the RDA because the Commission has been directed to simultaneously (1) apply rate increases of 4%, 3.5% and 3% for each of

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<sup>2</sup> Direction No. 6 to the British Columbia Utilities Commission, B.C. Reg. 29/2014, s. 3(c).

<sup>3</sup> Exhibit B-1, Application, p. 7-6.

F2017, F2018 and F2019, respectively,<sup>4</sup> (2) ensure that the Tier 2 energy rate reflects BC Hydro's LRMC, and (3) set the Tier 1/Tier 2 90/10 split to achieve, to the extent reasonably possible, revenue neutrality.<sup>5</sup> However, for F2017, if the Commission applies the required 4% increase to both Tier 1 and Tier 2 equally, the Tier 2 price falls below BC Hydro's estimate of LRMC.<sup>6</sup> The Commission must, therefore, determine an alternate way to increase Tier 1 and Tier 2 in a manner that (1) achieves the legislated rate increases, (2) sets Tier 2 within BC Hydro's estimated LRMC range, and (3) achieves, to the extent reasonably possible, revenue neutrality.

14. As BC Hydro indicates, "revenue neutrality" is not defined in the direction to the Commission, and could entail forecast revenue neutrality (equal expected forecast revenue recovery) or customer bill neutrality (equal bill for customers that do not change usage). The options BC Hydro presents have been determined on the basis of customer bill neutrality, which AMPC considers more correct, although there is little dollar value difference between the two options.
15. BC Hydro has proposed three options for pricing RS 1823 energy:
  - (i) Option 1 – in F2017, Tier 2 is set at the lower end of the LRMC, and Tier 1 set to achieve customer bill neutrality (instead of an across the board 4% rate increase). For F2018 and F2019, the RRA rate increases of 3.5% and 3% would be applied equally to Tier 1 and Tier 2.
  - (ii) Option 2 – Tier 2 is set at the lower end of LRMC for each of F2017-F2019, and Tier 1 is calculated to achieve customer bill neutrality for each year based on the RRA rate increase.
  - (iii) Option 3 – For F2017, all of the RRA rate increase is applied to Tier 2, and Tier 1 is held constant at F2016 level. For F2018 and F2019, Tier 2 is set at the upper end of the LRMC, and Tier 1 is adjusted accordingly.
16. As mentioned, the Commission should approve Option 1, being BC Hydro, AMPC, and the Canadian Association of Petroleum Producers' preferred option. Option 1 allows the

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<sup>4</sup> Direction No. 7 to the BC Utilities Commission, B.C. Reg. 28/2014, s. 9(1) [Direction No. 7].

<sup>5</sup> Exhibit B-1, Application, p. 7-6; Direction No. 7, s. 3(1).

<sup>6</sup> Exhibit B-1, Application, p. 7-8.

Commission to achieve all three of its objectives: it creates the necessary 4% rate increase, ensures Tier 2 is set within the estimated LRMC range, is customer bill neutral, and, following updates to the Application in IRs, is now essentially forecast revenue neutral too (the difference between required and expected revenue is miniscule, amounting to 0.1% of BC Hydro's forecast revenue requirement from the transmission service rate class in F2017-F2019).<sup>7</sup>

17. Although Option 2 also allows the Commission to achieve the same three objectives without being forecast revenue neutral, the Commission should prefer Option 1 because Option 2 has some drawbacks compared to, but provides no advantages over, Option 1.<sup>8</sup> When BC Hydro compared Option 1 to Option 2 on the basis of Bonbright efficiency criteria, the two options were largely neutral relative to one another, but Option 1 was superior to Option 2 in three ways.
18. First, Option 2 is inferior from an efficiency perspective because Option 2 creates the largest Tier 1 price increases by fixing Tier 2 at its lowest possible value for each of F2017-F2019.<sup>9</sup> For those years, Tier 1 bears the brunt of rate increases given the direction that the Commission keep Tier 2 within BC Hydro's LRMC range, such that the gap between the Tier 1 and Tier 2 rates shrinks. Option 2 therefore has the following effects relative to Option 1:
  - (i) Option 2's lower Tier 2 rate sends a weaker energy conservation signal than Option 1's, and is less economically efficient.
  - (ii) Customers who have made conservation investments would unfairly experience higher than average rate increases relative to those customers who have not made conservation investments because a greater proportion of their energy usage is in Tier 1.<sup>10</sup>
  - (iii) Breaking from the status quo ratio between Tier 1 and Tier 2 amounts to rate instability that may make customers hesitant to invest in conservation

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<sup>7</sup> Exhibit B-5, BCOAPO IR 1.160.4. Calculation is the sum of under-recovery for F2017-F2019 divided by the sum of revenues for F2017-F2019.

<sup>8</sup> Exhibit B-50, BC Hydro Undertaking 15.

<sup>9</sup> Transcript, Volume 4, p. 637, line 1 to p. 638, line 6; p. 641, lines 2-18.

<sup>10</sup> Transcript, Volume 4, p. 639, line 23 to p. 640, line 11.

in the future, in part because customers that have already invested in conservation may feel like “the goal posts have moved”.<sup>11</sup>

19. These concerns were specifically raised by customers in consultation sessions with BC Hydro, where they received feedback including:<sup>12</sup>

“Uniform rate increases provide simplicity and predictability and maintains a conservation differential between Tier 1 and 2, and therefore there is value in that it offers uniformity and clarity.” ...

“It doesn’t seem fair that the benefit of that conservation is eroded, where tier 2 is fixed, and only tier 1 goes up, so I am penalized. The uniform increase will solve that.” ...

“Speaking as an energy manager, a higher tier 2 rate provides a quicker payback and makes my investment in conservation projects more attractive.”

20. Second, Option 1 has strong customer acceptance, both from groups representing customers taking service under RS 1823,<sup>13</sup> and from other, unaffected customer groups.<sup>14</sup> As such, it is clear that customers generally agree that Option 1 is a fair, efficient and stable approach.
21. Third, Option 1 is easily understood, consistent with how RRA increases have been applied to other rates such as the residential inclining block in F2018 and F2019 and how the government has directed rate increases in the past.<sup>15</sup> All else being equal, consistency between rates is a measure of the efficiency of those rates – coming to a consistent approach through different avenues suggests that the overall approach itself is reasonable.
22. There appears to be no question, therefore, that Option 1 is superior to Option 2: it upholds the purpose of the tiered rate structure, maintains customer confidence in stable rates and has their acceptance, does not unfairly penalize customers who have made

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<sup>11</sup> Transcript, Volume 4, p. 641, line 19 to p. 642, line 9.

<sup>12</sup> Transcript, Volume 4, p. 643, lines 9-26.

<sup>13</sup> Exhibit B-50, BC Hydro Undertaking No. 15.

<sup>14</sup> Exhibit B-1, Application, p. 7-11, lines 8-13.

<sup>15</sup> Exhibit B-50, BC Hydro Undertaking No. 15.

conservation investments, maintains the stronger conservation price signal, and better reflects explicit government direction.

23. Option 3 was not seriously supported by any stakeholders, so AMPC will only address it briefly. Option 3 is the only option that shifts the Tier 2 rate toward the upper end of BC Hydro's LRMC. While this increases the conservation signal, it would create an unrealistic revenue shortfall for BC Hydro.
24. Some customer groups appear to suggest that BC Hydro should apply "forecast revenue" neutrality rather than "customer bill" neutrality in setting the RS 1823 rate. AMPC submits that this question is practically irrelevant here given that the difference between customer bill and forecast revenue neutrality for Option 1 is immaterial (as noted, 0.1% of forecast revenue for RS 1823 customers). The Commission should instead give significant weight to the views of affected customers, in addition to the other reasons Option 1 is superior.
25. Ultimately, customer bill neutrality should be preferred for RS 1823 customers given the conservation rate is predicated on the Tier 1/Tier 2 energy price split. Shifting to a forecast revenue neutrality definition of revenue neutrality would be a shift from past practice and would negatively affect the Tier 1/Tier 2 in a manner that, as noted above, shifts goal posts and negatively affects customers that have made conservation investments. In other words, if the conservation rate functions the way it is supposed to and creates energy conservation amongst RS 1823 customers, customer bill neutrality ensures that those customers actually enjoy the benefits of their conservation, while forecast revenue neutrality undermines the purpose of the rate by eroding the economic benefits attendant with achieving conservation, distorting the price signal. Transmission service customers, as BC Hydro notes in its Application, accepted RS 1823 on this basis.<sup>16</sup>
26. AMPC therefore respectfully requests that the Commission BC Hydro's proposed RS 1823 rate as filed.

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<sup>16</sup> Exhibit B-1, Application, p. 7-14.

**C. LGS Pricing**

27. AMPC submits that the Commission should approve BC Hydro's proposed flat energy and flat demand LGS rates with increased demand charge recovery because:
- (i) the old tiered rate created significant barriers to customer understanding that impeded any effect on conservation that it may have had;
  - (ii) in contrast, a flat energy and demand charge has broad customer acceptance and understanding; and
  - (iii) an increased demand charge recovery percentage is justified to mitigate the significant impacts that efficient, high load factor customers would otherwise face from the changed rate structure.
28. AMPC will first address BC Hydro's proposed flattened energy and demand charges, then the proposed increased demand charge recovery percentage.

**Flattened Energy and Demand Charges are Fairer and More Transparent**

29. AMPC supports BC Hydro's proposal to flatten the LGS energy and demand charges from the current tiered rates because:
- (i) The existing rate is overly complicated and had little customer understanding, which undermined its conservation signal. Roughly half of general service customers did not even face the conservation energy rate price due to their consumption.<sup>17</sup>
  - (ii) In contrast, a flat energy and demand charge is simple for customers to understand and has broad customer acceptance.
  - (iii) Further, flat energy and demand charges more equitably distribute fixed costs among customers of different sizes, which imposed increasing demand charges based on increasing usage.
  - (iv) BC Hydro's proposed approach is also consistent with practice in other jurisdictions in Canada, which is reflective of its reasonableness.

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<sup>17</sup> Transcript, Volume 5, p. 883, lines 7-15.



30. BC Hydro has provided overwhelming evidence that the current LGS rate structure is not providing its anticipated benefits:

- (i) Only 35% of LGS customers correctly identified the two-part energy rate as applicable across four possible rate structure selections,<sup>18</sup> and awareness does not appear to increase after extra time on the rate.<sup>19</sup>
- (ii) The incentive to save electricity built into the rate was cited as a conservation driver by only 27% of customers, with the top drivers being “want energy costs to be as low as possible”, “right thing to do” and “overall level of electricity prices”.<sup>20</sup>
- (iii) The perceived complexity of the rate structure caused customers to disengage from trying to understand the billing process or find ways to reduce their total bill amount.<sup>21</sup>
- (iv) Most customers simply look at the total dollar amount of their bills, not rate structures, as a motivator for conservation.<sup>22</sup>
- (v) BC Hydro’s analysis of 12 key accounts that they expected to be particularly responsive to the conservation rate did not detect a statistically significant conservation effect.<sup>23</sup>
- (vi) Similarly, a BC Hydro randomized control trial showed only 0.7% energy savings per LGS account by the end of F2014.<sup>24</sup>
- (vii) These findings are in part explained by the fact that roughly 50% of general service customers do not see the conservation price signal from the current tiered rate.<sup>25</sup>

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<sup>18</sup> Exhibit B-1, Application, p. 6-46

<sup>19</sup> Exhibit B-1, Application, Appendix C-4A, p. 43 of 813.

<sup>20</sup> Exhibit B-1, Application, p. 6-47

<sup>21</sup> Exhibit B-1, Application, p. 6-48.

<sup>22</sup> Exhibit B-1, Application, p. 6-48.

<sup>23</sup> Exhibit B-1, Application, p. 6-47.

<sup>24</sup> Exhibit B-1, Application, Appendix C-4A at p. 50 of 813.

<sup>25</sup> Transcript, Volume 5, p. 883, lines 7-15.

31. This evidence, supported by Ms. Jubb's testimony,<sup>26</sup> makes clear that the status quo LGS rate is failing to achieve its conservation objectives because its complexity undermines customer understanding. The rate's complexity also imposes a significant administrative burden on BC Hydro that increases costs.<sup>27</sup> In addition, the rate does not accurately charge customers demand charges that reflect cost causation – the tiered demand charge places an extra burden on high usage customers to the benefit of low usage customers.<sup>28</sup>
32. Those factors strongly support ending the status quo rate LGS structure, for an easier to understand, administratively simpler solution. AMPC submits that BC Hydro's proposed LGS rate with flat energy and demand charges is a reasonable approach to replace the status quo for the following reasons.
33. First, the flattened LGS rate has broad stakeholder support amongst LGS customers.<sup>29</sup> Customer acceptance is an important Bonbright criteria to consider in approving rates, especially where, as here, there is broad support for the rate both within the rate class and from other ratepayer representatives.
34. Second, the predictability of the flat energy and demand rates are likely to continue to drive some conservation given that total bill impact appears to be a significant conservation driver. Customers will be able to clearly see how reduced consumption will reduce their energy bill, creating a stronger conservation incentive than the status quo, where most customers could not determine the bill impact of conservation.
35. Third, the flattened demand charge better reflects cost causation. Under the status quo, customers faced increasing demand charges as their billing demand increased. As a result, relative to cost causation, low usage customers paid less than their proportionate share of demand charges, while high usage customers paid more.<sup>30</sup> The flattened demand charge is therefore a more fair and reasonable alternative because it more closely charges customers based on the cost to serve them.

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<sup>26</sup> Transcript, Volume 5, p. 972, line19 to p. 974, line 1.

<sup>27</sup> Exhibit B-1, Application, p. 6-40.

<sup>28</sup> Exhibit B-1, Application, p. 6-43 and p. 6-56.

<sup>29</sup> Exhibit B-1, Application, pp. 6-52 to 6-53 and 6-59.

<sup>30</sup> Exhibit B-1, Application, p. 6-43 and p. 6-56.

36. Fourth, the flat demand charge is more consistent with how other jurisdictions design rates for large general service customers.<sup>31</sup> Jurisdictional support reflects the reasonableness of BC Hydro's proposed approach – utilities and regulators elsewhere have found that flattened energy and demand charges for LGS-like customers are an efficient rate structure.
37. Fifth, after some one-time administrative costs, the flattened energy and demand charges will reduce administrative complexity, and in turn reduce BC Hydro's information technology and billing costs.<sup>32</sup> BC Hydro's proposed rate is therefore consistent with the Commission's mandate to both enhance efficiency and reduce costs through rates.<sup>33</sup>
38. Through cross-examination, Commission counsel canvassed whether there was a loss of conservation arising from the energy rate under BC Hydro's proposed LGS rate being below BC Hydro's LRMC range. In its argument, BC Hydro suggests that there is a "trade-off between customer understanding and acceptance...and economic efficiency".<sup>34</sup> AMPC wishes to highlight that this statement in BC Hydro's argument must be read in light of their comments that follow, and that any such "trade-off" in this instance is only theoretical. BC Hydro's data is clear that no actual material conservation signal was sent by the prior rate design, so there is no trade-off in moving to a flat energy rate below LRMC. BC Hydro's new proposed rate therefore does not reduce economic efficiency, but greatly enhances customer understanding and acceptance. A price signal that is not received does not convey any information about efficient use.
39. Further, a trade-off, even if only theoretical, would still only be present if one narrowly views economic efficiency as setting the energy price within the LRMC range. In AMPC's view, described in greater detail below, there is also a trade-off between energy and capacity conservation – an increased energy rate and decreased demand charge increases energy conservation at the expense of capacity conservation, and vice versa. Both forms of conservation must be considered when determining whether there is a loss of economic efficiency. LRMC expressed only as an energy rate creates the misleading impression that future costs are all variable and energy related, when in fact

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<sup>31</sup> Exhibit B-1, Application, p. 6-55.

<sup>32</sup> Exhibit B-1, Application, p. 6-40.

<sup>33</sup> *Utilities Commission Act*, s. 60(1)(b)(iii).

<sup>34</sup> BC Hydro Final Argument, para. 130.

many are mostly fixed and increasingly capacity related, evidenced by the capacity constrained nature of BC Hydro's system. In this case, increasing demand charges will reduce the capacity demands placed on BC Hydro's capacity-constrained system and reflect improved economic efficiency.

40. AMPC is not opposed in theory to a more granular rate that provides a stronger energy conservation signal. However, the large, heterogenous nature of the LGS rate class makes the implementation of such a rate exceptionally difficult.<sup>35</sup> A conservation rate structure is administratively easier for (i) transmission service customers, where there are a few large customers that can have individual baselines set according to their operations, or (ii) for residential customers, who have, or ought to have, similar energy usage that allows for the easy setting of a one-size-fits-all inclining block. In contrast, LGS customers have a broad range in energy usage, an order of magnitude from approximately 200,000 to 3.4 million kWh per year,<sup>36</sup> and that range is driven primarily by the diverse businesses they operate in. There are too many LGS customers for it to be efficient for BC Hydro to set baselines based on individual customer performance, as for transmission service customers, and too much diversity for a one-size-fits-all inclining block structure that would treat large LGS operations unfairly relative to small operations due solely to the nature of their operations.
41. For this reason, during consultations AMPC proposed the "XLGS" concept of the largest several hundred LGS customers receiving individually set baselines. This rate class could be used to incent increased energy conservation through a similar tiered rate structure with a baseline as in RS 1823. This is an example of a more granular approach that is likely to be more effective at creating conservation in the future. Any residual concern about energy charge conservation signals should therefore be directed toward achieving a workable XLGS rate in the RDA Module 2. BC Hydro indicated in the oral hearing that it will consider AMPC's proposal to establish an XLGS rate class.<sup>37</sup>
42. Again, the status quo was an attempt to get around these limitations and develop an algorithmic baseline that theoretically would incent conservation relative to a customer's standard usage. As is now clear from BC Hydro's data, however, this approach was too

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<sup>35</sup> Transcript, Volume 5, p. 947, line 19 to p. 948, line 6.

<sup>36</sup> Exhibit B-1, Application, p. 6-58, Figure 6-10.

<sup>37</sup> Transcript, Volume 5, p. 975, line 18 to p. 976, line 5.

complicated to effect any shift in consumption because LGS customers did not understand how the rate worked, and because roughly 50% of general service customers did not even see the conservation price signal. A signal not received can have no conservation effect. Accordingly, AMPC submits that BC Hydro's proposed flattened energy and demand charge is a reasonable solution in the circumstances.

### **Increased Demand Charge Recovery Minimizes Adverse Bill Impacts for Efficient Customers**

43. AMPC supports BC Hydro's proposal to increase the demand charge cost recovery from 50% to 65% for LGS customers.
44. During consultations, AMPC expressed concern about the unintended, unprincipled, and disproportionate impact the rate flattening would have on high consumption, high load factor customers.<sup>38</sup>
45. BC Hydro acknowledged that a drawback to its proposed no baseline, flattened energy and demand charge approach for LGS customers is that some customers would experience large bill impacts.<sup>39</sup> The lowest consumption, lowest load factor customers see bill decreases, while the highest consumption, highest load factor customers see the largest bill increases.<sup>40</sup> These decreases range from 1.5-18%, while the increases are over 5% in some cases.<sup>41</sup>
46. AMPC submits that the unfair distribution of bill impacts under a flattened rate justifies mitigation if available. These intra-class distributional impacts are in and of themselves unfair to those customers who bear the burden of the rate structure change, but they are especially problematic in this instance because they are borne almost entirely by BC Hydro's most efficient LGS customers. High load factor customers make more efficient use of BC Hydro's system because they make more consistent use of BC Hydro facilities and generally require less BC Hydro capacity to serve them than a customer consuming the same amount of annual energy but with a lower load factor.<sup>42</sup>

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<sup>38</sup> Exhibit B-1, Application, Appendix C-4B, p. 242 to 247 of 382.

<sup>39</sup> Exhibit B-1, Application, pp. 6-58 to 6-59.

<sup>40</sup> Exhibit B-1, Application, pp. 6-65 to 6-66.

<sup>41</sup> Transcript, Volume 5, p. 939, line 16 to p. 941, line 13.

<sup>42</sup> Exhibit B-5, BCUC IR 1.82.1.

47. Indeed, in BC Hydro's 2007 RDA, the Commission expressed its concern regarding the detrimental impact to high consumption, high load factor customers from flattened energy and demand charges in rejecting BC Hydro's proposed rate.<sup>43</sup> The Commission directed BC Hydro to commence meaningful stakeholder engagement with LGS customers to file with the Commission a rate structure that did not unduly benefit or harm any customers in that class.<sup>44</sup>
48. BC Hydro has identified that increasing the demand charge recovery percentage from 50% to 65% reduces these bill impacts: although high load factor customers would continue to face bill increases, and low load factor customers would still receive bill decreases, the magnitude of these bill impacts are significantly blunted when the demand charge recovery is increased. As Mr. Mau noted in cross-examination, the increased demand charge recovery spreads the bill impacts out more evenly within the LGS rate class.<sup>45</sup> This approach is entirely consistent with the Commission's direction in the 2007 RDA.
49. AMPC further submits that BC Hydro's proposed approach to minimize bill impacts is reasonable because increasing the demand charge recovery (1) is consistent with the principle of cost causation, (2) reflects a directional change consistent with other rate classes and jurisdictions, and (3) improves economic efficiency by sending a capacity conservation price signal.
50. First, cost causation is an important principle in rate setting under cost of service regulation,<sup>46</sup> and increased demand charge recovery better attributes the costs of capacity to those LGS customers that require BC Hydro to invest in capacity.<sup>47</sup> As a result, increased demand charge recovery is a principled approach to reducing the bill impacts of BC Hydro's revised approach. Even at the increased level, the LGS demand charges will only recover a portion of demand related costs.
51. Second, the increased demand charge recovery aligns LGS customers with transmission service customers, who also recover 65% of demand-related costs through

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<sup>43</sup> BC Hydro 2007 Rate Design Application Phase 1 Decision, dated October 26, 2007 at pp. 161-162.

<sup>44</sup> *Ibid* at p. 163.

<sup>45</sup> Transcript, Volume 5, p. 946, lines 16-19.

<sup>46</sup> Bonbright, Daniels and Kamerschen, *Principles of Public Utility Rates*, 2<sup>nd</sup> edition (Arlington, Virginia: Public Utilities Reports, Inc., 1988), p. 383 ("Bonbright")

<sup>47</sup> Exhibit B-5, BCUC IR 1.82.1.

the demand charge. BC Hydro's proposed demand charge of \$10.83 is also directionally consistent with other jurisdictions in Canada.<sup>48</sup> This consistency suggests that the increased demand charge recovery is appropriate.

52. Third, the 65% demand charge recovery percentage creates a more economically efficient price signal than at 50%. As AMPC previously noted, demand charges are an important conservation price signal:

In the planning process, long-run marginal costs expressed as unit energy costs (\$/MWh – presuming all the costs of development are variable) are frequently used to summarize the comparative costs of alternative sources in a highly simplified manner for ranking of new resource choices. In transferring this simplified unit energy cost concept to rate design, care must be taken to not lose sight of the reality that most of the marginal costs of supply are fixed costs and not variable costs. Demand charges are therefore an important price signal for efficiency. They reflect the high proportion of marginal (as well as embedded) costs that do not vary with hourly energy usage. High load factor customers responding to higher demand charges not only use existing facilities more efficiently, but also reduce the need for future (marginal) facilities. Marginal cost in rate design should not only focus on energy rates, and the significance of demand rates in providing efficiency signals should not be neglected.<sup>49</sup>

53. Mr. Doyle and Dr. Orans acknowledged this point, agreeing with the following propositions:

- (i) Demand charges should try to recover demand-related costs based on cost causation.<sup>50</sup> The increased demand charge recovery percentage better reflects cost causation.
- (ii) BC Hydro is currently capacity, not energy, constrained.<sup>51</sup> The increased demand charge creates a price signal to conserve capacity, and increasing the LGS demand charge recovery incents higher load factor

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<sup>48</sup> Exhibit B-1, Application, Appendix C4-B, pp. 131-132 of 382.

<sup>49</sup> Exhibit B-5, Appendix C-4B, p. 246 of 382.

<sup>50</sup> Transcript, Volume 5, p. 938, lines 13-20.

<sup>51</sup> Transcript, Volume 5, p. 938, line 26 to p. 939, line 4.

usage, which is in effect capacity conservation.<sup>52</sup>

- (iii) Capacity conservation in a capacity constrained system is a desirable, economically efficient outcome.<sup>53</sup>

54. As such, not only does the increased demand charge recovery percentage ameliorate the significant bill impacts that efficient customers face, but it also serves as an important capacity conservation price signal.

55. Although the increased demand charge causes a small decrease in the energy rate, which could be seen as a reduced incentive to conserve energy, three factors militate against this:

- (i) As noted, under the previous stepped rate, fewer than 50% of customers even faced the highest tier conservation rate. The modest decline in the energy rate from increasing the demand charge recovery will have little effect on the conservation price signal it sends relative to the status quo, especially given that any energy rate will be well below BC Hydro's LRMC.<sup>54</sup>
- (ii) BC Hydro's research clearly indicates that customers are more likely to respond to changes in total bill rather than bill components.<sup>55</sup> As such, absent the increased demand charge, the total bill price signal the flattened LGS rate sends is for high load factor customers to decrease energy usage, and for low load factor customers to increase energy usage. This is an economically inefficient outcome – even if it results in less energy usage by the LGS rate class, which is unclear, it increases the proportion of usage by inefficient customers.
- (iii) When energy and demand charges are traded-off against each other, there will always be a shift between an energy- and capacity-related conservation signal. An increased energy conservation price signal

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<sup>52</sup> Transcript, Volume 5, p. 937, line 26 to p. 938, line 25.

<sup>53</sup> Transcript, Volume 5, p. 938, lines 13-20.

<sup>54</sup> Exhibit B-5, BCOAPO IR 1.149.2

<sup>55</sup> Exhibit B-1, Application, p. 6-48 and Appendix C-4A, p. 48 of 813.



means a lower capacity conservation price signal, and vice versa. The fact of a lessened energy conservation price signal is not problematic in and of itself.

56. AMPC submits that BC Hydro's proposal to increase the demand charge recovery percentage is therefore well justified. It more fairly distributes the impacts of the changed LGS rate structure between customers to both minimize total bill impacts and better reflect cost causation, while also sending a better capacity conservation price signal. BC Hydro's evidence suggests that any loss of an energy conservation price signal is likely minimal, and is nonetheless acceptable in light of the significant benefits afforded by the increased demand charge recovery percentage. Accordingly, the Commission should accept BC Hydro's proposal as applied for.

**D. Low Income Rate for Residential Customers**

57. AMPC takes no position on whether the Commission has jurisdiction to order the particular low income rates proposed by BCOAPO because AMPC's members are not affected by a determination of the intra-class constituencies for the residential rate class. AMPC has no objection in principle to BCOAPO's proposed "Crisis Intervention Fund", which would provide low income residential customers who are in arrears to apply for a grant to avoid disconnection. AMPC does accept that "lifeline" programs may serve an important policy purpose.
58. However, AMPC is concerned about BCOAPO's proposal to fund its proposal through a \$0.25/month charge per BC Hydro account for all accounts, and not confine the cost burden to residential accounts. Although the amounts being charged to customers in other rate classes are *de minimis* in this instance, AMPC submits that such inter-class cross-subsidization is inconsistent with cost causation principles and should not be accepted absent compelling offsetting factors, which are absent here, in particular where the subsidy flows to the rate class with the lowest revenue-to-cost ratios well below 100%. As explained below, the residential rate class is capable of funding the initiative itself.

59. Bonbright acknowledges that the “most widely accepted measure of reasonable public utility rates and rate relationships is cost of service.”<sup>56</sup> Thus, the cost to serve customers is the fundamental principle used to set rates for customers. Customer costs are typically allocated where a utility’s costs are directly tied to the number of customers, rather than energy consumption or maximum kilowatt demand.<sup>57</sup>
60. In this instance, BCOAPO’s proposed “Crisis Intervention Fund” is only for the benefit of those residential ratepayers that qualify for it, making it a cost attributable to the residential rate class and not independent of energy consumption or maximum demand. BCOAPO’s proposed funding mechanism therefore inappropriately shifts a portion of residential costs to other rate classes through a customer charge. The effect of this shift is multiplied by the fact that, based on BC Hydro’s F2013 fully allocated cost of service study, residential rates only recover 89.8% of their cost of service, while other rate classes other than irrigation are paying 102.1-126.7% of their cost of service.<sup>58</sup> As a result, not only does BCOAPO’s proposal subsidize the residential rate class, it does so in a manner that imposes additional costs on customers paying rates that are well in excess of their cost of service to subsidize customers that are paying much less than their cost of service.
61. Further, although the bill impact for customers in other rate classes are minimal, the expected revenue from those customers is also minimal and does not justify shifting costs to other rate classes. BCOAPO’s proposal is paid for on a per-bill charge, and residential customers represent approximately 90% of customer bills.<sup>59</sup> Accordingly, other rate classes can only be expected to pay approximately 10% of the cost of BCOAPO’s program, meaning that a residential customer would have to pay an

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<sup>56</sup> Bonbright at p. 389

<sup>57</sup> Bonbright at p. 401.

<sup>58</sup> Exhibit B-1, Application, p. 3-36, Table 3-6. AMPC notes that similar numbers arise from the final F2016 COS Study, which AMPC has some concerns with, with residential customers facing a R/C ratio of 93.9, and rate classes other than irrigation facing R/C ratios of 101.4 to 134.1.

<sup>59</sup> AMPC has approximated this number based on the following data:

Residential Bills - 1,742,798 from BC Hydro F2017-F2019 Revenue Requirements Application, Appendix T, Attachment 3, p. 4.

MGS - 16,246 from BC Hydro RRA, Appendix T, Attachment 3, p.10.

LGS - 6,635 from BC Hydro RRA, Appendix T, Attachment 3, p. 26.

SGS – 180,367 from Exhibit B-26, BCOAPO 1.137.2.

TSR – 140 from Transcript, Volume 5, p. 948, line 2.

AMPC notes that this number is approximate only, as it does not include all customer classes. However, the number is presented for illustrative purposes.

additional 2.5 cents per bill to avoid inappropriately imposing a per bill charge on other customer classes. This amount, if shifted to the residential rate class, would create an immaterial impact on their rates.

62. BCOAPO justifies charging all customer classes for the Crisis Intervention Fund because “all customer classes...receive benefits...extending to each aspect of the community”<sup>60</sup> from reducing the impact of financial crises on individuals, such as through avoided loss of employee productivity.<sup>61</sup> This misses the point: ratemaking is not about charging customers based on the benefit they receive from various programs, but instead based on the costs they cause a utility to incur to provide them with service. Communities also benefit from increased employment and reduced costs of necessary goods, but similarly that does not in and of itself justify shifting the cost to serve industrial or commercial customers to residential customers. Indeed, it would be rare that a program to reduce rates for a certain customer class would not have a broader community impact.
63. Taken together, BCOAPO’s proposal to fund its Crisis Intervention Fund through a per-bill charge is not reasonable. The Commission should therefore reject BCOAPO’s proposal to pay for its Crisis Intervention Fund through a per-bill charge.

#### **E. Tilbury Island LNG Facility**

64. In cross-examination, counsel to MoveUP briefly questioned BC Hydro’s policy panel on the Tilbury Island liquefied natural gas (LNG) facility. In particular, MoveUP commented that an increased energy price for this facility “protects” other customers from its connection to BC Hydro’s system, and the fairness of doing so for Tilbury Island LNG but not for other new industrial customers.<sup>62</sup>
65. AMPC wishes to make clear that the energy price for Tilbury Island LNG has been directed by the government, and that BC Hydro has no authority to change this price once set by the Commission. In this instance, the provincial government made a policy decision, which is within its power to do, to require all LNG liquefaction facilities (including Tilbury Island) to pay more than the BC Hydro rate for energy.

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<sup>60</sup> Transcript Volume 7, p. 1251, lines 19-20; p. 1252, lines 8-11; BCOAPO Argument, p. 68.

<sup>61</sup> Transcript Volume 7, p. 1250, lines 24-26; 1251, lines 1-18; BCOAPO Argument, p. 68.

<sup>62</sup> Transcript, Volume 3, p. 515, line 22 to p. 517, line 4.

66. In contrast, BC Hydro, based on fundamental rate-making principles, has no obligation to “protect” other ratepayers from new customers, nor should it. Fundamentally, as noted, cost of service is the primary method for setting rates for customers. As Bonbright notes, given its considerable limitations, marginal cost pricing would likely require restructuring of how public utilities function.<sup>63</sup>
67. AMPC notes, in particular, that efficiency includes both static (within the existing system) and dynamic (future system changes) efficiency.<sup>64</sup> Static efficiency focuses on reducing wasteful usage of the current system, while dynamic efficiency focuses on reducing the utility’s costs over time. LRMC, although expressed as a variable cost, strictly not strictly a variable energy cost, as it is often portrayed, and has both energy and capacity components.<sup>65</sup> As noted, BC Hydro’s system is faces greater capacity constraints than energy constraints at this time. These nuances must be considered in any future analysis of marginal cost pricing.
68. The Commission should therefore place no weight on this aspect of MoveUP’s questioning here, or elsewhere. Its only relevance lies in understanding the myriad of cross-cutting policy considerations the government faces with its stated goal of fostering a BC LNG export industry. Those issues are far from the RDA.

### III. CONCLUSION

69. Based on the foregoing, AMPC respectfully requests the Commission:
- (i) approve BC Hydro’s proposed RS 1823 rate as filed, namely Option 1;
  - (ii) approve BC Hydro’s proposed LGS rate as filed, including both flat energy and demand charges, and an increased demand charge recovery percentage from 50% to 65%; and
70. AMPC opposes BCOAPO’s crisis fund to the extent it extends across rate class boundaries.

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<sup>63</sup> Bonbright, p. 446.


<sup>64</sup> Bonbright, pp. 383-384.

<sup>65</sup> Bonbright, pp. 423-424.

All of which is respectfully submitted October 11, 2016.

**Bull, Houser & Tupper LLP**

Per:   
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Per:   
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